

IN THE CLAIMS:

The following is a complete listing of the claims and replaces all earlier listings and all earlier versions.

1. (Currently Amended) An image processing apparatus for ~~forming a mosaic image by combining a plurality of material images~~ combining material images, which have been selected from a plurality of material images, to create an image patterned after an original image, comprising:

input means for inputting ~~a first~~ an original image ~~that is the basis of a mosaic image;~~

storage means for storing the plurality of material images;

image characteristic acquisition means for dividing the ~~first~~ original image into a plurality of areas, subdividing each of these areas into a plurality of subareas and obtaining a first image characteristic of each subarea;

designation means for designating an important area of each of the plurality of material images ~~which form the mosaic image;~~

means for obtaining ~~the first image characteristic and~~ a second image characteristic of each of the plurality of material images in dependence upon the important area designated by said designation means;

distance calculation means for calculating a difference between the first image characteristic and the second image characteristic to calculate distances between each area of the ~~first~~ original image and each of the material images; [[and]]

selection means for selecting a material image corresponding to each area in dependence upon the distances calculated by said distance calculation means; and

generating means for generating the image patterned after the original image by pasting the material image selected by said selection means, to the corresponding each area of the original image.

2. (Original) The apparatus according to claim 1, wherein said image characteristic acquisition means acquires the first image characteristic by obtaining average R, G, B values of a plurality of pixel values which constitute the plurality of subareas.

3. (Original) The apparatus according to claim 1, further comprising means for dividing each of the plurality of material images into a plurality of subareas and obtaining the second image characteristic of each of these subareas.

4. (Original) The apparatus according to claim 1, wherein said distance calculation means calculates the difference upon enlarging weighing of the difference between the image characteristics corresponding to a subarea that has been designated by said designation means.

5. - 10. (Canceled).

11. (Currently Amended) An image processing apparatus for forming a ~~mosaic image~~ an image patterned after an original image by combining a plurality of material images, comprising:

input means for inputting a ~~first~~ an original image ~~that is the basis of a mosaic image;~~

storage means for storing the plurality of material images;

image characteristic acquisition means for dividing the ~~first~~ an original image into a plurality of areas and obtaining an image characteristic of each area of the plurality of areas;

weighting input means for inputting weighting information for selecting material images ~~that form the mosaic image;~~

distance calculation means for ~~obtaining~~ calculating distances between the image characteristic of each area of the original image and image characteristics of each of the plurality of material images based upon the weighting information that has been input by said weighting input means; [[and]]

selection means for selecting material images corresponding to respective ones of the areas in dependence upon the distances calculated by said distance calculation means; and

generating means for generating the image patterned after the original image by pasting each of the material images selected by said selection means, to the corresponding each area of the original image.

12. (Currently Amended) The apparatus according to claim 11, wherein said image characteristic acquisition means acquires the ~~first~~ original image characteristic by obtaining average R, G, B values of a plurality of pixel values which constitute each of the plurality of ~~subareas~~ areas.

13. (Original) The apparatus according to claim 11, wherein said image characteristic acquisition means acquires the image characteristic by obtaining average values of luminance and color differences of each of a plurality of pixels forming each area.

14. (Currently Amended) The apparatus according to claim 11, wherein said distance calculation means ~~obtains differences~~ calculates distance between average values of luminance and ~~average values of~~ color differences of pixels in each area and corresponding average values of luminance and ~~average values of~~ color differences of pixels of each material image.

15. (Original) The apparatus according to claim 11, wherein the weighting information is information indicating whether the distance between each area and each material image is to be obtained upon stressing luminance or upon stressing color difference.

16. (Canceled).

17. (Original) The apparatus according to claim 11, further comprising means for obtaining image characteristics of respective ones of the plurality of material images.

18. (Currently Amended) An image processing apparatus for combining ~~a plurality of~~ material images, which have been selected from a plurality of material images, to create an image patterned after an original image, comprising:

designation means for designating a partial area in the original image;

dividing means for dividing the original image into a plurality of areas;

determination means for determining whether each of the plurality of areas obtained by division by said dividing means includes the partial area designated by said designating means; and

similar-image selection means for preferentially selecting, from among a plurality of material images not yet selected, a material image that most closely resembles the area in which the partial area is included, determined by said determination means; and

image pasting means for generating the image patterned after the original image, by pasting the material image selected by said similar-image selection means, to the area of the original image.

19. (Original) The apparatus according to claim 18, further comprising calculation means for calculating average density of each of the plurality of material images.

20. (Previously Presented) The apparatus according to claim 18, wherein said similar-image selection means has arithmetic means for calculating average densities of the areas, and

wherein material images to be assigned to the areas being decided in accordance with differences between average densities of respective ones of the areas calculated by said calculation means and average densities of respective ones of the plurality of material images.

21. (Previously Presented) The apparatus according to claim 18, wherein said similar-image selection means has arithmetic means for calculating average densities of the areas, and

wherein material images to be assigned to the areas being decided in accordance with differences between average densities, calculated by said arithmetic means, of areas determined not to include the partial area and average densities of respective ones of the plurality of material images not selected by said similar-image selection means.

22. (Original) The apparatus according to claim 18, wherein said designation means includes:

display means for displaying the original image; and
means for designating a partial area of the image displayed by said display means.

23. (Original) The apparatus according to claim 18, wherein said designation means has means for automatically discriminating and designating the partial area of the original image.

24. (Canceled).

25. (Previously Presented) The apparatus according to claim 18, further comprising image selection means for selecting, from among a plurality of material images not selected by said similar-image selection means, material images that most closely resemble areas determined by said determination means not to include the partial area.

26. (Currently Amended) An image processing apparatus for combining ~~a plurality of~~ material images, which have been selected from a plurality of material images, to create an image patterned after an original image, comprising:

dividing means for dividing the original image into a plurality of areas;

luminance calculation means for calculating average luminance of each of the plurality of areas obtained by division by said dividing means;

image selection means for selecting material images corresponding to respective ones of the plurality of areas based upon the average luminance of each of the plurality of areas calculated by said luminance calculation means and the luminance of each material image; and

image pasting means for generating [[an]] the image patterned after the original image, by pasting the material images selected by said image selection means to respective ones of corresponding areas of the original image.

27. (Original) The apparatus according to claim 26, wherein said image pasting means generates a monochrome image.

28. (Original) The apparatus according to claim 26, further comprising material-image luminance calculation means for calculating average luminance of each of the plurality of material images.

29. (Previously Presented) The apparatus according to claim 26, wherein said image selection means calculates differences between average luminances of respective ones of the plurality of areas and average luminances of the material images, and selects, as material images corresponding to the areas, materials images for which the distances are smallest.

30. (Original) The apparatus according to claim 26, further comprising means for rendering a material image, which has been selected by said image selection means, into a monochrome image.

31. (Original) The apparatus according to claim 26, further comprising:
inspecting means for inspecting an image obtained by pasting by said image
pasting means; and
means for determining, in dependence upon results of inspection by said
inspection means, whether the image is to be rendered into a monochrome image.

32. (Original) The apparatus according to claim 26, wherein said image
pasting means generates sepia-toned mosaic image.

33.- 37. (Canceled).

38. (Currently Amended) An image processing method for forming a
~~mosaic~~ an image patterned after the original image by combining a plurality of material
images, comprising the steps of:

dividing an original image ~~that is the basis of the mosaic image~~ into a
plurality of areas;

obtaining an image characteristic of each area ~~obtained by division of the~~
original image divided in said dividing step;

weighting and calculating distances between the image characteristic of each
area and image characteristics of each of ~~[[the]]~~ a plurality of material images; ~~[[and]]~~

selecting material images corresponding to respective ones of the areas in dependence upon ~~results of calculation~~ the distance calculated in said weighting and calculating step; and

generating the image patterned after the original image by pasting the material images selected in said selecting step, to respective ones of corresponding areas of the original image.

39. (Original) The method according to claim 38, wherein a material image corresponding to each area is a material image having an image characteristic that most closely resembles the image characteristic of this area.

40. (Original) The method according to claim 38, wherein the image characteristic is average R, G, B values of a plurality of pixel values which constitute each area or each material image.

41. (Original) The method according to claim 38, wherein the image characteristic is average values of luminance and color differences of each of a plurality of pixels forming each area or each material image.

42. (Original) The method according to claim 38, wherein the calculation of the distances includes calculation for obtaining differences between average values of luminance and average values of color differences of pixels of each area and

corresponding average values of luminance and average values of color differences of pixels of each material image.

43. (Original) The method according to claim 38, wherein the weighting is decided in dependence upon whether the distance between each area and each material image is to be obtained upon stressing luminance or upon stressing color difference.

44. (Canceled).

45. (Original) The method according to claim 38, wherein the weighting is changed uniformly for the entire image that is the basis of the mosaic image or area by area.

46. (Currently Amended) An image processing method for forming a mosaic an image by combining a plurality of material images, comprising the steps of:

dividing an original image ~~that is the basis of the mosaic image~~ into a plurality of areas;

obtaining an image characteristic of each area ~~obtained by division the~~ original image divided in said dividing step;

calculating distances between the image characteristic of each area and image characteristics of each of the plurality of material images based upon ~~stressing~~

luminance or color difference of pixels of each area and each of the plurality of material images; [[and]]

selecting material images corresponding to respective ones of the areas in dependence upon results of calculation; and

generating the image patterned after the original image, by pasting the material images selected in said selecting step, to respective ones of corresponding areas of the original image.

47. (Original) The method according to claim 44, wherein a material image corresponding to each area is a material image having an image characteristic that most closely resembles the image characteristic of this area.

48. (Currently Amended) An image processing method for combining ~~a plurality of~~ material images, which have been selected from a plurality of material images, to create an image patterned after an original image, comprising:

a designation step, of designating a partial area in the original image;

a dividing step, of dividing the original image into a plurality of areas;

a determination step, of determining whether each of the plurality of areas obtained by division in said dividing step includes a partial area designated in said designating step; and

a similar-image selection step, of preferentially selecting, from among the plurality of material images not yet selected, a material image that most closely resembles the area in which the partial area is included, determined in said determination step; and
a pasting step, of generating the image patterned after the original image by pasting the material images selected in said similar-image selection step to respective ones of corresponding areas of the original image.

49. (Previously Presented) The method according to claim 48, further comprising a calculation step, of calculating average density of each of the plurality of material images.

50. (Previously Presented) The method according to claim 48, wherein said similar-image selection step has an arithmetic step of calculating average densities of the areas, and

wherein material images to be assigned to the areas being decided in accordance with differences between average densities of respective ones of the areas calculated in said calculation step and average densities of respective ones of the plurality of material images.

51. (Previously Presented) The method according to claim 48, wherein said similar-image selection step has an arithmetic step of calculating average densities of the areas, and

wherein material images to be assigned to the areas being decided in accordance with differences between average densities, calculated in said arithmetic step, of areas determined not to include the partial area and average densities of respective ones of the plurality of material images not selected in said similar-image selection step.

52. (Previously Presented) The method according to claim 48, wherein said designation step includes:

a display step, of displaying the original image; and

a step of designating a partial area of the image displayed in said display step.

53. (Previously Presented) The method according to claim 48, wherein said designation step includes a step of automatically discriminating and designating the partial area of the original image.

54. (Canceled).

55. (Previously Presented) The method according to claim 18, further comprising an image selecting step, of selecting, from among a plurality of material images not yet selected, material images that most closely resemble areas determined in said determination step to include the partial area.

56. (Previously Presented) An image processing method for combining a plurality of material images, which have been selected from a plurality of material images, to create an image patterned after an original image, comprising:

a dividing step, of dividing the original image into a plurality of areas;

a luminance calculation step, of calculating average luminance of each of the plurality of areas obtained by division in said dividing step;

an image selection step, of selecting material images corresponding to respective ones of the plurality of areas based upon the average luminance of each of the plurality of areas calculated in said luminance calculation step and the luminance of each material image; and

an image pasting step, of generating [[an]] the image patterned after the original image by pasting the material images selected in said image selection step, to respective ones of corresponding areas of the original image.

57. (Original) The method according to claim 56, wherein said image pasting step generates a monochrome image.

58. (Previously Presented) The method according to claim 56, further comprising a material-image luminance calculation step, of calculating average luminance of each of the plurality of material images.

59. (Previously Presented) The method according to claim 56, wherein said image selection step calculates differences between average luminances of respective ones of the plurality of areas and average luminances of the material images, and selects, as material images corresponding to the areas, materials images for which the distances are smallest.

60. (Previously Presented) The method according to claim 56, further comprising a step of rendering a material image, which has been selected in said image selection step, into a monochrome image.

61. (Previously Presented) The method according to claim 56, further comprising:

an inspecting step, of inspecting an image obtained by pasting in said image pasting step; and

a step of determining, in dependence upon results of inspection in said inspection step, whether the image is to be rendered into a monochrome image.

62. (Original) The method according to claim 56, wherein in said image pasting step, a sepia-toned mosaic image is generated.

63. (Currently Amended) A computer-readable storage medium storing a program which implements an image processing method for ~~forming a mosaic image by~~

~~combining a plurality of material images~~ combining a plurality of material images, which have been selected from a plurality of material images, to create an image patterned after an original image, comprising:

a program code module for dividing a first image that is the basis of the mosaic image into a plurality of areas;

a program code module for subdividing each of these areas obtained by division into a plurality of subareas;

a program code module for dividing a material image into a plurality of subareas;

a program code module for weighting and calculating a difference between an image characteristic of the first image and an image characteristic of each of the subareas of each of the material images; and

a program code module for selecting a material image corresponding to each area in dependence upon results of calculation, and replacing each area by the selected material image.

64. (Currently Amended) A computer-readable storage medium storing a program which implements an image processing method for ~~forming a mosaic image by combining a plurality of material images~~ combining a plurality of material images, which have been selected from a plurality of material images, to create an image patterned after an original image, comprising:

a program code module for dividing an image that is the basis of the mosaic image into a plurality of areas;

a program code module for obtaining an image characteristic of each area obtained by division;

a program code module for weighting and calculating distances between the image characteristic of each area and image characteristics of each of the plurality of material images; and

a program code module for selecting material images corresponding to respective ones of the areas in dependence upon results of calculation, and replacing each area by the selected material image.

65. (Currently Amended) A computer-readable storage medium storing a program which implements an image processing method for ~~forming a mosaic image by combining a plurality of material images~~ combining a plurality of material images, which have been selected from a plurality of material images, to create an image patterned after an original image, comprising:

a program code module for dividing an image that is the basis of the mosaic image into a plurality of areas;

a program code module for obtaining an image characteristic of each area obtained by division;

a program code module for calculating distances between the image characteristic of each area and image characteristics of each of the plurality of material images upon stressing luminance or color difference; and

a program code module for selecting material images corresponding to respective ones of the areas in dependence upon results of calculation, and replacing each area by the selected material image.

66. (Canceled).

67. (Currently Amended) A computer-readable storage medium storing a program which implements an image processing method for ~~forming a mosaic image by combining a plurality of material images~~ combining a plurality of material images, which have been selected from a plurality of material images, to create an image patterned after an original image, comprising:

a program code module for dividing an image that is the basis of the mosaic image into a plurality of areas;

a program code module for calculating average luminance of each of the plurality of areas obtained by division;

a program code module for selecting material images corresponding to respective ones of the plurality of areas based upon the average luminance of each of the plurality of areas calculated and the luminance of each material image; and

a program code module for generating an image by pasting the material images selected to respective ones of corresponding areas, and replacing each area by the selected material image.